

ZOOLOGY.—*Nemerteans from Antarctica and the Antarctic Ocean.*¹ WESLEY R. COE, Scripps Institution of Oceanography. (Communicated by F. A. CHACE, Jr.)

The collections of the United States Navy Antarctic Expedition in 1947–48 contained 75 specimens of nemerteans. These were dredged at several stations or collected along the shore of one of the islands in Marguerite Bay, Antarctica, near Peter I Island, Ross Island, and Cape Ross, by F. C. Nutt. Marguerite Bay is between Alexander I Island and Adelaide Island (68°–69°S., 68°–70°W.). It has a depth of 70 to 80 meters at the stations where the nemerteans were dredged. The collections indicate that the bay has a rather abundant nemertean fauna in spite of a water temperature of -1°C . or lower.

Although the collection includes only those species that have been previously described from the Antarctic region, the known geographical range is hereby extended and additional information relative to the morphological characteristics of the species has become available.

The species represented have been identified as: *Lineus corrugatus* McIntosh, 54 specimens; *Amphiporus gerlachei* Bürger, 1 specimen; *A. spinosus* Bürger, 1 specimen; *Tetrademma amphiporoides* Bürger, 7 specimens; *T. validum* Bürger, 12 specimens. These specimens are deposited in the U. S. National Museum.

Order PALEONEMERTEA

No representatives of this order were obtained by the Navy Expedition, and only two species have been reported from Antarctic regions. These are *Carinina antarctica* Bürger, 1904, and *C. mawsoni* Wheeler, 1940.

Order HETERONEMERTEA

Lineus corrugatus McIntosh, 1887

Cerebratulus corrugatus Hubrecht, 1887; *C. steinini*, *C. subtilis*, *C. validus* Bürger, 1893; *C. charcoti* Joubin; *C. austrani* Joubin, 1908; *L. corrugatus* Baylis, 1915; *L. corrugatus* Wheeler, 1934, 1940.

This species is so highly variable both in form

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and color that it is not surprising that the varieties were formerly considered to represent separate species. The worms are capable of an unusual degree of extension and contraction in life and on being placed in preserving fluid contract into a great variety of shapes. Consequently shape of head and length of cephalic grooves, as well as position and size of mouth, offer little evidence as to their specific identity. As a result, several different names have been given to the preserved specimens in the different collections. The species has usually been placed in the genus *Cerebratulus*, but the study of many living individuals by Wheeler (1934) proves that they have the essential characteristics of *Lineus*.

Colored figures of the living worms published by Wheeler show that the body is smooth and moderately flattened and elongated in life, although the preserved specimens are often so conspicuously wrinkled as to have justified the species name *corrugatus*.

The color in life varies in many shades of gray, pink, brown, and dark reddish brown or black; ventral side paler. A pair of white vertical bands is usually more or less conspicuous near the posterior ends of the cephalic grooves. Region of proboscis opening and borders of cephalic grooves pale gray or white. Similar in most respects to *Lineus magellaensis* but differs in lacking ocelli.

Individuals of this species often reach a size greater than that of any other known nemerteans of the Antarctic region. The length may sometimes exceed 50 cm. when fully extended, and the width 3 mm. After preservation the body usually contracts to a small fraction of this length, but the width may be increased to 15 mm. The largest preserved specimen in the Navy Expedition collection was 90 mm long and 8 mm wide. Some specimens remain with relatively little contraction, with smooth bodies, narrowly pointed head and long cephalic grooves. More frequently, however, the body is so strongly contracted that the surface is roughly furrowed and corrugated, with the head withdrawn and the cephalic grooves correspondingly short.

Geographical distribution: This is evidently the most abundant and most widely distributed of all the Antarctic species. Wheeler (1934) collected several hundred specimens at South Geor-

gia, South Shetlands, South Orkneys, Anvers Island, East Falkland Island, and from dredge hauls at intermediate stations. The species was found from low water mark to a depth of 270 meters.

On the Navy Antarctic Expedition this species was collected at the following stations by D. C. Nutt: Off Cape Royds, Ross Island, January 29, 1948, 116 meters, 8 specimens; Marguerite Bay, February 22, 1948, 80 meters, 37 specimens; Marguerite Bay, February 20, 1948, 70 meters, 9 specimens.

The following additional representatives of this order have been reported previously from South Georgia, Falkland Islands, and from dredging stations in the South Atlantic and Antarctic Oceans: *Baseodiscus antarcticus* Baylis, 1915; *Parapolia grytvikenensis* Wheeler, 1934; *Lineus longifissus* (Hubrecht), 1887; *L. scotti* Baylis, 1915 (*L. roseocephalus* Wheeler); *L. magelhaenicus* Bürger, 1895; *Cerebratulus johnstoni* Wheeler, 1940; *C. larseni* Wheeler, 1934; and *C. malvini* Wheeler, 1934.

Order HOPLOMERTEA

Amphiporus gerralchei Bürger, 1904

A. gerralchei Wheeler, 1934.

The body is moderately slender and pink or rosy in color. Length of body 16 to 25 mm, width 2 to 3 mm. Bürger (1904) has published a colored figure of the living worm. Each side of the head is provided with two groups of large ocelli. The cerebral sense organs are large and are situated beside the brain. The armature of the proboscis consists of a relatively large, pear-shaped basis and 2 pouches, each containing 2 to 7 accessory stylets. There are 12 proboscoidal nerves.

Geographical distribution: The specimen studied by Bürger was dredged near the ice shelf west of Charcot Island at a depth of about 500 meters. The considerable number examined by Wheeler (1934) came from depths of 161 to 208 meters in the vicinity of the Falkland Islands. The single specimen collected by D. C. Nutt on the Navy Antarctic Expedition was dredged at a depth of 80 meters near Marguerite Island. At all these localities the species was associated with *Lineus corrugatus*.

Amphiporus spinosus Bürger, 1893

A. spinosus Wheeler, 1934, 1940.

Examination of a large number of living indi-

viduals by Wheeler (1934) convinced him that this species is more variable morphologically than any other member of the genus at present known. Particularly variable are the number of pouches of accessory stylets in the proboscis and the number of proboscoidal nerves. According to Wheeler's report, the accessory pouches in different individuals may vary from 2 to 22, with 1 to 3 stylets in each. If numerous, they may occupy the entire circumference of the proboscis. He found the number of proboscoidal nerves to vary from 11 to 26.

The body is nearly cylindrical and may reach a length of 180 mm. The color in life is stated to be pale pink, pinkish red, brick red, or orange. Ocelli are minute but very numerous, occurring as a broad, dense patch on each side of head anterior to brain, with a few others scattered on dorsal side of brain region.

Wheeler (1934) concluded that the great variability in the proboscis armature is responsible for the several specific names that the species has been given by Bürger and Joubin. He has listed *A. spinosissimus* Bürger, *A. cruciatus* Bürger, and *A. multihastatus* Joubin as synonyms. Since in all the other known species of this genus there is relatively little variability in the proboscis armature, it may be suspected that further study of living material will prove that one or more of these names actually represent valid species.

Geographical distribution: The species has been collected over a wide area in the Antarctic. It was found in abundance among kelp holdfasts at South Georgia, and has been dredged at depths of up to 270 meters in the adjacent seas. One specimen was dredged by the Navy Antarctic Expedition off Cape Ross at a depth of 116 meters, January 29, 1948.

Tetrastemma amphiporoides Bürger, 1893

This species was first described by Bürger (1893) from South Georgia but was not mentioned by Wheeler (1934). Seven specimens were obtained by the Navy Antarctic Expedition. Each of these is about 20 mm long and 3 mm in width. The body is slender and flattened, with four large ocelli on the head. Bürger describes the color in life as dark violet dorsally and orange on ventral surface. In color the species is similar to *T. validum*, but the shape of body, general appearance, and internal anatomy differ. The armature of the proboscis consists of a conical basis, of approximately equal length to the

sharply pointed central stylet, and two pouches with usually four stylets in each. There are 10 or 12 proboscoidal nerves.

Geographical distribution: Dredged by the Navy Antarctic Expedition near Peter I Island at a depth of 60 meters by D. C. Nutt, February 15, 1948. Previously known only from the island of South Georgia.

Tetrastemma validum Bürger, 1893

T. validum Wheeler, 1934, 1940.

In form and color this is one of the most easily recognized of all species of nemerteans. The body is short and stout; rounded dorsally and flattened ventrally. The head is acutely pointed and separated from body by transverse lateral grooves. Color of dorsal surface is dark brown, with tinge of red, yellow, or purple. Ventral surface white, pale gray, pinkish or yellowish. In region of cephalic grooves the pale color of ventral surface extends dorsally to form a pair of conspicuous white lateral markings. These markings are broadly oval when body is extended but become sharply pointed dorsally when contracted. The internal anatomy is described in detail by Wheeler (1934), with a colored figure showing the characteristic markings of the living worm.

Twelve specimens of this species were collected by D. C. Nutt along the rocky shore of an island in Marguerite Bay. These specimens varied from 5 to 24 mm in length after preservation, although some of the living individuals mentioned by Wheeler (1934) were 35 to 40 mm long and 2.5 mm in width.

Geographical distribution: This is evidently a common species in the Antarctic region, for it has been collected also in Bransfield Strait, South Shetlands, at a depth of 200 meters, and in shallow water in the Palmer Archipelago, as well as near King Edward Cove, South Georgia (Wheeler 1934). Bürger first described the species from South Georgia.

The following additional representatives of this order have been reported from South Georgia, Falkland Islands, and the Antarctic region:

- Amphiporus falklandicus* Wheeler, 1934.
- inexpectatus* Wheeler, 1934.
- lecointei* Bürger, 1904.
- marioni* Hubrecht, 1887.
- moseleyi* Hubrecht, 1887 (*A. racovitzai* Bürger).
- schollaerti* Wheeler, 1934.
- scoresbyi* Wheeler, 1934.
- Tetrastemma antarcticum* Bürger, 1893.
- duboisii* Bürger, 1893.

Tetrastemma esbensenii Wheeler, 1934.

- georgianum* Bürger, 1893.
- gulliveri* Bürger, 1893.
- hansi* Bürger, 1893.
- longistriatum* Wheeler, 1934.
- maivikenensis* Wheeler, 1934.
- stanleyi* Wheeler, 1934.
- unilineatum* Joubin, 1910.
- weddelli* Wheeler, 1934.

Nemertopsella marri Wheeler, 1940.

Drepanophorella tasmani Wheeler, 1940.

It will be observed that among these 35 species at present known from the Antarctic, the only representatives of the Paleonemertea are 2 species of *Carinina*, although the Heteronemertea are represented by 9 species and the Hoplonemertea by 24 species. In comparison, there are 53 species recorded from the Atlantic coast of North America, of which 5 are paleonemerteans, 19 heteronemerteans, 28 hoplonemerteans, and 1 bdellonemertean. On the Pacific coast of North America there are 98 known species; 11 of these are paleonemerteans, 37 heteronemerteans, 49 hoplonemerteans, and 1 bdellonemertean. The Antarctic nemertean fauna therefore does not differ widely from that of other regions, for with one exception the genera are identical and the proportionate representation of the species among the orders is in reasonably close agreement. All the species, however, appear to be peculiar to the Antarctic.

Although the temperature of the water remains below 0° C. even in midsummer in some of these areas, the nemertean population is almost as large and the mature individuals of approximately the same size as in related species living in regions of more moderate temperature.

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ZOOLOGY.—*A new precious coral from North Borneo*.¹ FREDERICK M. BAYER, U. S. National Museum. (Communicated by FENNER A. CHACE, JR.)

The Octocorallia collected during the Philippine cruise of the U. S. Fish Commission steamer *Albatross* have as yet not been reported upon, but preliminary studies indicate that the collection is one of great interest, and the number of species represented will probably be considerable. Although the collection contains only a single precious coral, it has proved to be new. In order to provide a complete key to the Indo-Pacific Coralliums for another report in preparation, it becomes necessary to describe it at this time, in advance of a complete report on the Philippine collection.

Although this new *Corallium* was obtained off North Borneo, not a single specimen was secured in the nearby Philippine waters. The absence of precious corals from collections made in the Philippine Archipelago is probably due to the fact that tangles were not used in the dredging operations. Most species of *Corallium* inhabit rocky ground where standard dredges and trawls are ineffective in securing fixed organisms. Seale (1911, p. 305; 1917, p. 204) states that a few small specimens have been found on the beach at Mindanao; since several species are more or less abundant in Japan, and three are now known from the Moluccas and Borneo, it seems likely that *Corallium* will eventually be found more or less abundantly in the Philippine Archipelago.

Corallium borneënsis, n. sp.

Diagnosis.—*Corallium* branched on all sides; axis solid, striated, round except at twig tips where it is X- or Y-shaped in cross section; autozooids large, wartlike, set singly or in small groups, usually clustered on twig tips; siphonozooids minute, surrounding autozooids; coenenchyma papillate. Spicules: smooth double clubs, 6-, 7-, 8-radiates and crosses in both rind and

verrucae; small rods with simple warts in verrucae only. Color in alcohol: rind salmon, verrucae flame scarlet (Ridgway, 1886, pl. 7); axis white with pink center.

Type.—U.S.N.M. no 49325, Sibuko Bay, British North Borneo: off Si Amil Island north 74° west, 5.4 miles (4°17'40" N., 118°57'42" E.), 292 fathoms, fine sand and green mud, bottom temperature 44.3°F. (*Albatross* station 5584, September 27, 1909).

Description.—The type is 5.5 cm in height, possibly only a branch of a large colony. The main axis is about 9 mm in diameter near the base, decreasing to 3.5 mm at the top. About 15 mm from the base there is a round hole 3 mm in diameter leading to a cavity within the stem; at the base of a branch 6 mm above the first hole there is a small but deep pit not connected with the axial cavity. These deformities were probably caused by a polychaete commensal. The axis is obscurely striated, round except at the twig tips where it is X- or Y-shaped in cross section. Branches are given off on all sides of the stem, projecting at right angles or inclined a little upward. The large branches irregularly subdivide into thick, clavate twigs which bear at their ends clusters of several autozooids; the small branches are mostly simple and of about the same calibre as the secondary twigs of the large branches. The autozooid calyces are low warts about 2 mm in diameter; very few occur on the main stem, but on the branches they are numerous, appearing singly or in groups of two or three, well separated. Twigs and branches terminate distally in a group of autozooids. There appears to be no predominance of autozooids on any one side; calyces may occur all around, or along any side. The siphonozooids are visible as small warts with simple orifices, often of a lighter color than the surrounding coenenchyma, situated around the bases of the autozooid calyces. The surface of the coenenchyma is papillate, but the character of the minute verrucae remains to be determined; it is possible that they also are siphonozooids, but

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